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SUBJECT—

TITLE

INSECT SURVEY
WEISER NATIONAL FOREST
AND
ADJACENT TIMBER LANDS
1941

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Since 1937 rather thorough biennial surveys have been made in the ponderosa pine and Douglas fir stands of the Weiser National Forest and in important timber stands adjacent to the forest. These surveys were made in order to know the extent of insect loss occurring to these two principal timber species by attacks of the western pine beetle and the Douglas fir beetle, so that measures might be undertaken to prevent widespread damage should epidemic conditions develop. By a system of biennial surveys, supplemented with annual checks of the more heavily infested stands, it is possible to keep informed on the status of insect infestations and to know of epidemic conditions before widespread damage is done. To obtain the information necessary to meet this end, it is not necessary to cover a very high percentage of an area, and often a very extensive examination will suffice. The 1941 survey of the Weiser National Forest and the adjacent state and privately owned stands was necessarily limited because of a limited amount of funds and time available for the work. However, it is believed that with the data taken and supplemented by a great deal of observation, a very good picture of the insect infestations may be drawn.

The western pine beetle normally has two generations during the season and sometimes a partial third. The first attack occurs early in

the season and brood from the first attack emerges during July and attacks green trees. The brood from this second attack develops into adults which ordinarily stay in the tree until the following May. The surveys are made in the fall after insect activity is over, and both the trees killed by the first generation as well as those attacked by the second generation are counted in order to get an annual loss figure; however, only the second generation attacks have brood in them at the time of the survey.

This season's survey started September 19 and ended September 25,1941. A small crew of five men was used and transportation was provided by two pick-ups.

For convenience, the Weiser National Forest has been divided into several large units which correspond closely to the forest plan of working circles. During the first complete survey in 1937, data were tabulated by these large unit areas because the entire units were systematically covered with sample strips. Since the 1937 survey, examinations have been confined to smaller areas such as drainages within the units.

The following table will show the areas surveyed during 1941, as well as comparable data from 1939 where such data are available.

PONDEROSA PINE - WESTERN PINE BEETLE

Unit and area	Acres surveyed	Infested trees per acre 1939	Infested trees per acre 1941	Percent of stand 1941
Council Unit				
W. Branch of Weiser R.	5,000		.03	.2
North Mill Creek	5,760		.04	.7
Mid. Fork of Weiser R.	1,280	.0	.12	1.0
W. Fork of Weiser R.	1,000	.10	.15	2.2
Paradise Flats	1,900		.0	.0
Indian Valley Unit				
Mill Creek	3,840	.06	.03	.5
* Meadows Unit	133,500	.02	.004	.1
*Payette Lake Unit	4,000		.01	.3
Squaw Creek Unit	17,000	.04	.04	1.0

* State and privately owned.

The infested-tree-per-acre figure given in the above table includes both first- and second-generation attacks. More detailed data on the 1941 infestation will be given, with a brief description of each area.

COUNCIL UNIT

West Branch of Weiser River — 5,000 acres surveyed

Trees per acre of strip					
Insect-attacked				Green trees	
Ponderosa pine			D. F.	P. P.	D. F.
Generations					
1st	2nd	Total			
.0	.03	.03	0	20	4

Only one sample strip was run in this area, and the data taken are considered to represent the conditions on a strip two miles wide along the west branch of the Weiser River between the Evergreen campground and the mouth of the East Fork of the Weiser.

Although this area has a fair stand of ponderosa pine, there has been considerable cutting for logs and wood. The work is probably done during the summer and early fall and most of the insect-infested trees are no doubt cut for wood by ranchers.

North Mill Creek — 5,760 acres surveyed

Trees per acre of strip					
Insect-attacked				Green trees	
Ponderosa pine			D. F.	P. P.	D. F.
Generations					
1st	2nd	Total			
.04	0	.04	0	7	1

A few strips were run in the North Mill Creek drainage, where there is a rather large body of poorly stocked ponderosa pine and Douglas fir. The timber although good in spots is as a rule quite scattered, with large rocky openings.

Only two first-generation attacks were recorded on 225 sample plots.

Middle Fork of Weiser River — 1,280 acres surveyed

Trees per acre of strip					
Insect-attacked				Green trees	
Ponderosa pine		D. F.		P. P.	D. F.
Generations					
1st	2nd	Total			
0	.12	.12	0	12	1

The sample plots taken in the middle fork of the Weiser River drainage were confined to about two sections in the vicinity of Cabin Flats, where a small infestation had been reported by the Council ranger station. Two infested trees were recorded on the sample plots and an occasional red-topped tree was seen on a rather intensive coverage of the area by the writer. The pine in the area is well-stocked along the stream and apparently very healthy. Although the infested tree-per-acre figure seems high, the area does not have the appearance of having an epidemic infestation.

West Fork of Weiser River — 1,000 acres surveyed

Trees per acre of strip					
Insect-attacked				Green trees	
Ponderosa pine		D. F.		P. P.	D. F.
Generations					
1st	2nd	Total			
.05	.10	.15	0	7	0

The scattered ponderosa pine stands of the west fork of the Weiser River have suffered more from insect loss than most of the pine

stands of the forest. The area is lightly timbered, with most of the timber occurring along the streams and on the ridges. There are many large, open, grassy hill sides and areas that are rocky and barren. The area seems very dry and the timber seems to be very much of a marginal type.

Although the infestation is high in percentage of stand killed and relatively high in number of stems killed per acre, it is not the result of a rapid building up. During survey in 1937 area was found to have an infestation of .10 infested trees per acre. The area was rechecked in 1938 and found to be in much the same status as in 1937. Again in 1939, sample strips showed an infestation of .095 per acre. The timber seems to be very susceptible to other destructive agents as well as to insects. Several trees were examined that were apparently being killed by wood borers, while others were fading for no apparent cause.

Paradise Flats 1,900 acres surveyed

No infestation recorded.

Although the timber on Paradise Flats in the Crooked River drainage was badly infested several years ago, no infestation could be found by intensive coverage of the area. Wood cutters take all of the infested trees out of the area as soon as they are found. These operations are believed to have been a very effective form of control.

INDIAN VALLEY UNIT

Mill Creek — 3,840 acres surveyed

Trees per acre of strip					
Insect-attacked				Green trees	
Ponderosa pine			D. F.	P. P.	D. F.
Generations					
1st	2nd	Total			
.0	.03	.03	.03	7	5

Data from the 1937 survey showed the Mill Creek drainage to have the heaviest infestation found on the forest. At that time the infestation was concentrated, to some extent, in the vicinity of the Mill Creek ranger station. Since 1937 the infestation has decreased materially. A small sawmill has been in operation in the area and local wood cutters are permitted to take insect-killed timber free, and because the area is easily accessible by roads they have cut a great many infested trees and hauled them out for wood.

On some of the northern slopes there is a fair stand of Douglas fir which is lightly infested by the Douglas fir beetle.

MEADOWS UNIT — 133,300 acres surveyed

Trees per acre of strip					
Insect-attacked				Green trees	
Ponderosa pine			D. F.	P. P.	D. F.
Generations					
1st	2nd	Total			
.004	.004	.008	0	8	4

Only a normal infestation of the western pine beetle was found in the Meadows unit. During the course of the survey, over 2,000 sample

plots were examined and only a very few infested pine were recorded. The Meadows unit includes the Round Valley drainage, the Little Salmon Canyon as far as Elk Creek, and the Meadow Valley. Although most of the timber in this unit is state or privately owned, there is some national forest timber included which lies north and west of the Mud Creek ranger station.

A few red-topped trees that have been killed by the western pine beetle may be seen near the highway west of New Meadows, but there are not many.

No infested trees were found in the Round Valley Basin and only a few red tops were seen.

The Little Salmon River area, which is about three miles in width and extends from the mouth of Round Valley Creek north along the Little Salmon Canyon to the mouth of Elk Creek, was surveyed by strips having a total of 144 sample acres. On these strips only one infested pine was recorded and a few top-killed trees. There are four or five red-topped trees per mile along the highway which runs through the area, but these trees are not all insect killed. Most of them have been killed by river bank erosion, soil erosion on some of the steeper slopes, and in some instances road construction injury. The condition is not a serious one, nor an unusual one in stands growing on such dry rocky sites.

PAYETTE LAKE UNIT 4,000 acres surveyed

Trees per acre of strip					
Insect-attacked				Green trees	
Ponderosa pine			D. F.	P. P.	D. F.
Generations					
1st	2nd	Total			
0	.01	.01	0	4	12

During late June 1941 the writer made an extensive examination of the timber on the peninsula and along the shore of Payette Lake, where there are a number of summer homes and camps. The purpose of the examination was to determine the need for a more intensive survey later in the season. Although several infested trees were found, both ponderosa pine and in Douglas fir, it was evident that there was no very serious infestation. However, because the area has a high aesthetic value, it was felt advisable to include it in the survey of the adjacent ponderosa pine and Douglas fir stands. Accordingly during the survey three sample strips which gave a total of 85 sample acres were run, one on the peninsula and one on each side of the lake. Only one infested pine and no infested Douglas fir were found. There are, however, a few infested Douglas fir on the peninsula and probably a few along the lake shore.

On the peninsula the greatest damage seems to be in the State forestry camp ground*. Three of the large mature ponderosa pine were

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* A more detailed discussion of this situation is given in Mr. J. C. Evenden's report "Tree Mortality on the Camp Ground, Payette Lakes Peninsula", October 1941.

killed by the western pine beetle in 1940, but no 1941 attacks occurred. Several trees in the campground will probably die from the attacks of D. valens, which are working in some of the larger trees. These attacks occur largely from camp injury and probably from a certain amount of attraction caused by new building construction. Axe and climbing spur marks in the trees serve to induce the attacks of insects, and in many cases the attacks can be found directly in the wound.

One very important factor which is believed to have a direct bearing on the vigor of the trees is the condition of the soil in the camp ground. Instead of a natural, moisture-retaining duff and a cover of grasses, the soil is packed hard from use. Moisture runs off rapidly with very little of it soaking in. Packing seems to have lowered the ground level several inches and in some cases has exposed the upper surface of some of the larger tree roots.

The camp ground problem does not seem to be one of insect damage under the circumstances, but insects will no doubt be the agent that causes the final destruction of these weakened trees.

No important loss was recorded on the sample strips run along the lake shore, and no appreciable damage was seen from an extensive examination made around the lake.

SQUAW CREEK UNIT, PAYETTE NATIONAL FOREST 17,000 acres surveyed

Trees per acre of strip					
Insect-attacked				Green trees	
Ponderosa pine			D. F.	P. P.	D. F.
Generations					
1st	2nd	Total			
.01	.03	.04	0	5	2.5

The Squaw Creek unit on the High Valley ranger district of the Payette National Forest had an epidemic infestation when first surveyed in 1937. A check survey in 1939 showed the infestation to have decreased to a near normal status. Two sample strips were run south from the Mill Creek ranger station on the Weiser Forest, into the Bedground drainage of the Squaw Creek unit. The infestation in that area was found to be nearly the same as that in the Mill Creek drainage which it adjoins. Three infested trees were found on 360 sample plots which gave an infestation of .04 of an infested tree per acre. This is not a very heavy infestation, but the stocking of ponderosa pine is so light that .04 of an infested tree per acre is 1 percent of the stand.

CONCLUSIONS

It is the writer's conclusions that the insect infestations in the ponderosa pine and Douglas fir stands of the Weiser National Forest and on the timber stands adjacent are, as a whole, normal for such stands. There are different degrees of infestation on different areas, but one can probably expect a higher normal rate of kill on poor sites

than on good sites. In nearly every instance where infested ponderosa pine were found, they occurred on dry southern exposures or comparable sites.

There is practically no Douglas fir beetle infestation in the Douglas fir stands surveyed. However, most of the sample strips were projected primarily through ponderosa pine type and any Douglas fir encountered was recorded, but as Douglas fir was found often on the northern slopes and occasionally throughout the ponderosa pine type, it is felt that a fairly representative sample was taken.

Four areas, Middle Fork of the Weiser, West Fork of the Weiser, Mill Creek and Squaw Creek, should be inspected again in 1942.